

Claims:

1. A shift device for a vehicle, wherein the shift device sends a command signal to an electric actuator for shifting a plurality of gear ranges of a transmission of a vehicle by the electric actuator, wherein the gear ranges include a plurality of drive ranges and a parking range, the shift device comprising:

10 a shift lever arranged to move between a neutral position and a plurality of manipulation positions located about the neutral position;

15 a restoration mechanism for restoring the shift lever to the neutral position;

20 a first sensor for electrically detecting a manipulation performed to select one of the drive ranges; and

25 a second sensor for electrically detecting a manipulation performed to select the parking range, wherein at least the first sensor detects toward which of the manipulation positions the shift lever is manipulated.

2. The shift device according to claim 1, wherein the manipulation positions of the shift lever include a reverse position and a drive position, which are located on a first straight line with the neutral position in between, and a shift up position and a shift down position, which are located on a second straight line, which is perpendicular to the first straight line.

3. The shift device according to claim 1, wherein the first sensor includes a plurality of detection switches, and wherein each of the detection switches is located corresponding to one of the manipulation positions.

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4. The shift device according to claim 1, wherein the second sensor is a manipulation switch located on the shift

lever.

5. The shift device according to claim 1, wherein the shift device is located on a door of a vehicle.

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6. The shift device according to claim 1, wherein the shift device further includes a movement mechanism, which movably supports the shift device.

10 7. A shift device for a vehicle, wherein the shift device sends a command signal to an electric actuator for shifting a plurality of gear ranges of a transmission of a vehicle by the electric actuator, wherein the gear ranges include a plurality of drive ranges and a parking range, the shift device comprising:

a shift lever arranged to move between a neutral position and a plurality of manipulation positions located about the neutral position;

20 20 the neutral position;

a plurality of detection switches for electrically detecting a manipulation of the shift lever performed to select one of the drive ranges, wherein each of the detection switches detects toward which of the manipulation positions the shift lever is manipulated; and

25 a manipulation switch arranged on the shift lever, wherein the manipulation switch is manipulated to select the parking range.

30 8. The shift device according to claim 7, wherein the restoration mechanism includes:

a supporting member for supporting the shift lever such that the shift lever is selectively inclined to an arbitrary direction from the neutral position;

35 a plunger arranged on the shift lever, wherein the

plunger selectively projects from and retracted in the shift lever;

5 a base portion arranged opposite to the plunger, wherein the base portion includes a recess, which is engaged with the plunger; and

10 a spring for urging the plunger toward the recess, wherein, when the plunger is engaged with the recess by the force of the spring, the shift lever is maintained at the neutral position, and wherein, when the force to tilt the shift lever is released, the shift lever is restored to the neutral position by the force of the spring.

9. A shift device of a vehicle comprising:

15 a gear range shifting mechanism, which is actuated to mechanically shift the actual gear ranges of a transmission; an actuator for actuating the gear range shifting mechanism;

20 manipulation range detecting means for detecting a manipulation range, wherein the manipulation range represents manipulation of a shift manipulation portion by a driver;

actual gear range detecting means for detecting the actual gear range of the transmission;

25 a controller for shifting the actual gear ranges of the transmission by controlling the actuator in accordance with detection signals from the manipulation range detecting means and the actual gear range detecting means; and

30 manipulation range indicating means for indicating the manipulation range based on the detection signal from the manipulation range detecting means, wherein the manipulation range indicating means allows ^{NCA} ^{what??} to indicate that the manipulation range does not correspond to the detection signal from the manipulation range detecting means.

10. The shift device of a vehicle according to claim 9, 35 wherein, when the manipulation range differs from the actual

gear range, the manipulation range indicating means allows to indicate that the manipulation range does not correspond to the detection signal from the manipulation range detecting means.

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11. The shift device of a vehicle according to claim 9, wherein, when it is prohibited to shift the manipulation range, the manipulation range indicating means maintains the indication that is indicated before the manipulation is prohibited regardless of the detection signal from the manipulation range detecting means.

12. The shift device of a vehicle according to claim 9, wherein, when shifting of the actual gear range based on the manipulation of the shift manipulation portion by the driver is prohibited, the manipulation range indicating means indicates that the manipulation is prohibited.

13. The shift device according to claim 9, wherein, during a period from when the manipulation of the shift manipulation portion by the driver is confirmed by the manipulation range detecting means until when the shifting of the actual gear range corresponding to the manipulation is completed, the manipulation range indicating means indicates that the gear range is being shifted.

14. The shift device according to claim 9 further comprising an actual gear range indicating means for indicating the actual gear range in accordance with the detection signal from the actual gear range detecting means.

15. A shift device of a vehicle comprising:
a gear range shifting mechanism, which is actuated to mechanically shift the actual gear ranges of a transmission;
an actuator for actuating the gear range shifting

mechanism;

manipulation range detecting means for detecting a manipulation range, wherein the manipulation range represents manipulation of a shift manipulation portion by a driver;

5 actual gear range detecting means for detecting the actual gear range of the transmission;

a controller for shifting the gear ranges of the transmission by controlling the actuator in accordance with detection signals from the manipulation range detecting means

10 and the actual gear range detecting means; and

actual gear range indicating means for indicating the actual gear range based on the detection signal from the actual gear range detecting means, wherein the actual gear range indicating means allows to indicate that the actual gear range does not correspond to the detection signal from the actual gear range detecting means.

16. The shift device of a vehicle according to claim 15, wherein, when the manipulation range differs from the 20 actual gear range, the actual gear range indicating means allows to indicate that the actual gear range does not correspond to the detection signal from the actual gear range detecting means.

25 17. The shift device of a vehicle according to claim 15, wherein, when shifting of the actual gear range based on the manipulation of the shift manipulation portion by the driver is prohibited, the actual gear range indicating means indicates that the manipulation is prohibited.

30 18. The shift device according to claim 15, wherein, during a period from when the manipulation of the shift manipulation portion by the driver is confirmed by the manipulation range detecting means until when the shifting of 35 the gear range of the transmission corresponding to the

manipulation is completed, the actual gear range indicating means indicates that the gear range is being shifted.

19. The shift device according to claim 15 further
5 comprising a manipulation range indicating means for
indicating the manipulation range in accordance with the
detection signal from the manipulation range detecting means.

20. A shift device of a vehicle comprising:
10 a gear range shifting mechanism, which is actuated to
mechanically shift the actual gear ranges of a transmission;
an actuator for actuating the gear range shifting
mechanism;

15 manipulation range detecting means for detecting a
manipulation range, wherein the manipulation range represents
manipulation of a shift manipulation portion by a driver;

actual gear range detecting means for detecting the
actual gear range of the transmission;

20 a controller for shifting the gear ranges of the
transmission by controlling the actuator in accordance with
detection signals from the manipulation range detecting means
and the actual gear range detecting means;

25 manipulation range indicating means for indicating the
manipulation range based on the detection signal from the
manipulation range detecting means; and

actual gear range indicating means for indicating the
actual gear range based on the detection signal from the
actual gear range detecting means.

30 21. The shift device of a vehicle according to claim
20, wherein the shift manipulation portion includes a
manipulation member, and wherein the manipulation member is
automatically restored to a position before being manipulated
by the driver.

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22. A shift device of a vehicle comprising:
a gear range shifting mechanism, which is actuated to
mechanically shift the actual gear ranges of a transmission;
an actuator for actuating the gear range shifting

5 mechanism;

manipulation range detecting switch for detecting a
manipulation range, wherein the manipulation range represents
manipulation of a shift manipulation portion by a driver;

10 actual gear range detecting means for detecting the
actual gear range of the transmission;

a controller for shifting the gear ranges of the
transmission by controlling the actuator in accordance with
detection signals from the manipulation range detecting switch
and the actual gear range detecting sensor; and

15 manipulation range indicating device for indicating the
manipulation range based on the detection signal from the
manipulation range detecting switch, wherein the manipulation
range indicating device allows ⁰to indicate that the
manipulation range does not correspond to the detection signal
20 from the manipulation range detecting switch.

23. A shift device of a vehicle comprising:

a gear range shifting mechanism, which is actuated to
mechanically shift the actual gear ranges of a transmission;

25 an actuator for actuating the gear range shifting
mechanism;

manipulation range detecting switch for detecting a
manipulation range, wherein the manipulation range represents
manipulation of a shift manipulation portion by a driver;

30 actual gear range detecting means for detecting the
actual gear range of the transmission;

a controller for shifting the gear ranges of the
transmission by controlling the actuator in accordance with
detection signals from the manipulation range detecting switch
35 and the actual gear range detecting sensor;

actual gear range indicating device for indicating the actual gear range based on the detection signal from the actual gear range detecting switch, wherein the actual gear range indicating device allows θ to indicate that the actual gear range does not correspond to the detection signal from the actual gear range detecting sensor.

24. A shift device of a vehicle comprising:
a gear range shifting mechanism, which is actuated to
mechanically shift the actual gear ranges of a transmission;
an actuator for actuating the gear range shifting mechanism;

manipulation range detecting switch for detecting a manipulation range, wherein the manipulation range represents manipulation of a shift manipulation portion by a driver;

actual gear range detecting means for detecting the actual gear range of the transmission;

a controller for shifting the gear ranges of the transmission by controlling the actuator in accordance with detection signals from the manipulation range detecting switch and the actual gear range detecting sensor;

manipulation range indicating device for indicating the manipulation range based on the detection signal from the manipulation range detecting switch; and

actual gear range indicating device for indicating the actual gear range based on the detection signal from the actual gear range detecting sensor.